



UNIVERSITY OF ILLINOIS EXTENSION

College of Agricultural, Consumer, and Environmental Sciences

Illinois Fruit and Vegetable News

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A newsletter for commercial growers of fruit and vegetable crops

"We are what we repeatedly do. Excellence, then, is not an act, but a habit." Aristotle

Address any questions or comments regarding this newsletter to the individual authors listed after each article or to its editor, Rick Weinzierl, 217-244-2126, weinzier@illinois.edu. The *Illinois Fruit and Vegetable News* is available on the web at: <http://ipm.illinois.edu/ifvn/>. To receive email notification of new postings of this newsletter, call or write Rick Weinzierl at the number or email address above.

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Upcoming Programs

- **Openfields Farm Tour, Logan, Menard, and Sangamon Counties, June 24, 2012**, noon – 4:00 p.m. University of Illinois Extension invites you (and your family) to take part in the 1st Annual Openfields Farm Tour. Pick and choose your destinations on this no cost, self-guided tour of local farms, fields and gardens in central Illinois. Meet local producers and learn about locally grown food. For more information, see <http://web.extension.illinois.edu/units/event.cfm?UnitID=483&EventID=58224>
- **Introduction to Vegetable Diseases, June 26 and 27, 2012**, 6:00-8:00 p.m., at the University of Illinois Extension Office in Monmouth, IL. These sessions will deal with the general principles of the causes, diagnosis, and control of vegetable crop diseases primarily for market vegetable producers. For more information and to register, see <https://webs.extension.uiuc.edu/registration/?RegistrationID=6866> or contact Kyle Cecil at cecil@illinois.edu or 309-342-5108.
- **Is Entrepreneurial Farming for You? July 26, 2012**, 5:30 – 9:00 p.m. at the University of Illinois Extension Office in Springfield. A workshop to provide assistance to aspiring farmers with new business ideas. For more information and to register, see <https://webs.extension.uiuc.edu/registration/?RegistrationID=6818> or contact Deborah Cavanaugh-Grant at cvnghgrn@illinois.edu or call 217-782-4617.
- **Central Illinois Sustainable Farming Network Twilight Tour, August 7, 2012**, 6:00 -8:00 p.m., with registration from 5:30-6:00 p.m., at Samara Farm, 1150 N., Shelbyville, IL. Zach and Annie Metzger will discuss harvest, storage, handling, pricing, and marketing in a CSA (Community Supported Agriculture). For information and to register, see <https://webs.extension.uiuc.edu/registration/?RegistrationID=6646> or contact Deborah Cavanaugh-Grant at cvnghgrn@illinois.edu, 217-782-4617.

Regional Updates

In southern Illinois ... the region got a much needed rain last week, but it's time for another. As with much of the state, the southern region continues to run dry and temperatures have been running well above average for this time of year. 'Garnet Beauty' peaches came on the market early the second week of June and 'Redhaven' is coming in harvest now. Size and color development is good. Apples are sizing well, and like other fruit crops they are running about two weeks early. Early harvest of blackberries has started.

Please note that my office is moving to a new location. My email will remain the same but my office phone number will change. The move will start on June 25th and continue throughout the week. If you need to contact me next week, email will be the most reliable. As soon as I know the new phone number, it will be posted and announced in the newsletter.

Elizabeth Wahle (618-650-7050; wahle@illinois.edu)

In western Illinois ... the calendar indicates that summer just started, but conditions have been summer-like for a month, with high temperatures and little rain. The soil moisture situation today is a mixed bag over the area. From May 3 to Father's Day weekend, little to no precipitation fell (the area received less than one inch of rainfall). However, during Father's Day weekend some much anticipated rainfall occurred. We received amounts ranging from less than .3 inch to more than 3 inches. Those receiving the higher amounts are still smiling. Unfortunately there just aren't enough of them! Those that did receive beneficial rainfall, and did not have irrigation, have seen a marked increase in the vigor and condition of crops.

For vegetable and fruit growers, those with the ability to irrigate have a good crop. Some of those without that ability still have seeds in dry soil waiting for moisture to germinate ... and they've been sitting in dry soils for a number of weeks. Crop conditions continue to deteriorate in non-irrigated vegetables.

Harvest of tomatoes and peppers from high tunnels has begun, and the crop looks to be a good one. Several have commented on the great looking and early yielding green peppers. Field harvest of green beans, sweet corn, potatoes, and other "summer" crops has begun. The crop condition has been influenced by soil moisture. Those on higher organic matter soils are in much better shape than those on lower organic matter soils. Harvest of the cool-season vegetables (broccoli, cauliflower, cabbage, greens, etc.) is winding down or stopped.

Primocane blackberry (unmowed) harvest is winding down. Red raspberry harvest is still ongoing. Early blueberry varieties are on the downhill side of harvest, and mid-maturity ones are continuing. Any lack of water is influencing yields of these berry crops. Early peach varieties are sizing rapidly.

Japanese beetles became apparent about 2 weeks ago and western corn rootworm adults have emerged as well. Corn earworm moth counts in the immediate Quincy area have been variable throughout June, with counts in the mid 20's daily (wire Heliiothis trap) early in the month. The past week very few are being captured.

Mike Roegge (217-223-8380; roeggem@illinois.edu)

For Fruit and Vegetable Growers

Brown Marmorated Stink Bug

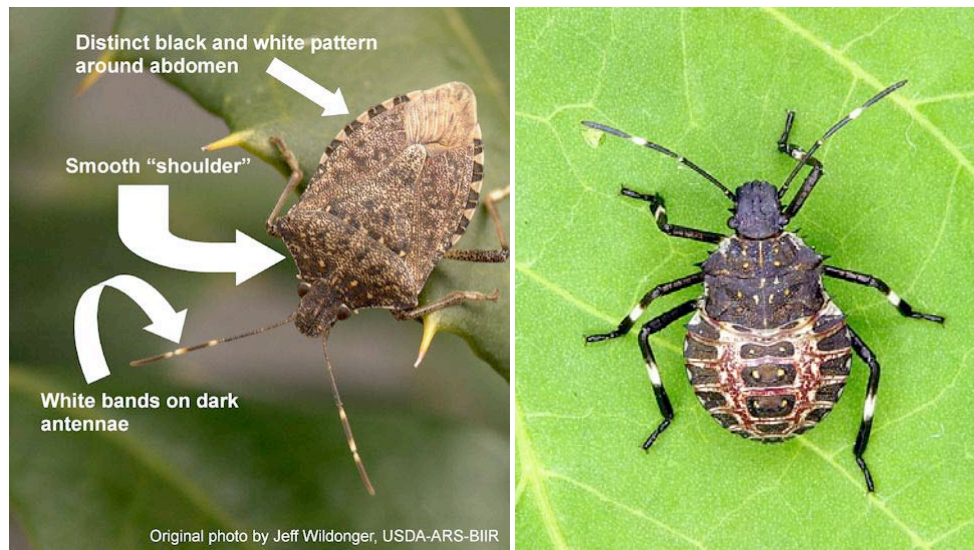
Just a brief update and reminder ... we still have no confirmed field infestations of brown marmorated stink bug in Illinois, and there is no reason to apply insecticides to fruit or vegetable crops to prevent damage from this pest. It is, however, a creature that everyone should be on the lookout for as the season progresses. Eventually, be it 2012, 2013, or further into the future, it will become established in Illinois.

Remember too that there are many native and established stink bug species in the U.S., and a number of the brown ones look a lot like the brown marmorated stink bug. The pictures below illustrate the characteristics that can be used to distinguish brown marmorated stink bug from other stink bugs, but for everyone who has not devoted (or wasted) at least a few years of life to entomology, the key step to confirming the identity of brown marmorated stink bug in

Illinois remains simple – collect the specimens, put them in a pill bottle or other crush-proof container, and send them to me ... Rick Weinzierl, Department of Crop Sciences, 1102 South Goodwin Avenue, Urbana, IL 61801.



Four common stink bugs that are not brown marmorated stink bug: Top left: *Euschistus servus*; top right: *Euschistus tristigmus* (photos from the University of Georgia). Bottom left: *Euschistus variolarius* (Oklahoma Panhandle State University); bottom right: spined soldier bug, *Podisus maculiventris*, a predaceous stink bug (photo by Ric Bessin, University of Kentucky).



Brown marmorated stink bug adult (left – photo by J. Wildonger, USDA) and nymph (right – photo from Michigan State University).

Rick Weinzierl (217-244-2126; weinzier@illinois.edu)

Fruit Production and Pest Management

European Red Mite in Apples

Earlier this week I saw European red mite infestations at near-threshold levels at a couple of locations in southwestern Illinois. Recent weather conditions and the forecast for the next couple of weeks make it likely that European red mites may be a problem elsewhere as well.

European red mite is often the poster child for illustrating the idea of a "secondary pest" ... an insect or related arthropod that is a pest only because insecticides have killed its natural enemies and allowed it to reach densities that would not occur under previous levels of natural biotic control. It is most often a problem in apples, but it also may infest peaches, other stone fruits, grapes, and brambles (raspberries and blackberries).



Left: European red mite eggs on bark (Virginia Tech.); right: European red mite adult. (Univ. of California)

European red mites overwinter as eggs, exposed on the surface of twigs. They begin hatching as apple trees begin to bloom, and they develop from egg to adult in 10 to 25 days. Six to eight generations develop each season. Immature stages and adults rasp away the leaf epidermis and feed on plant sap, causing leaves to turn yellow, bronze, or brown. Where leaves are damaged or drop, photosynthesis is reduced, fruit sizing is diminished, and sunburn of fruit may occur.

European red mite management:

- Application of superior oil from green tip to bloom is a key step in European red mite management. Sprays applied to cover twigs uniformly and completely just as green foliage is beginning to emerge in the spring (a "delayed dormant" application) coat the eggs of European red mite and rosy apple aphid and the hard covering of San Jose scale, suffocating these pests. Remember this for next year.
- Because using insecticides to control primary pests such as codling moth, apple maggot, and oriental fruit moth is necessary in many orchards, choosing insecticides that are effective against these pests but do not kill predaceous mites (*Amblyseius fallacis* = *Neoseiulus fallacis*) has been a key step in orchard IPM. Insecticides used against codling moth or apple maggot but considered to be low in toxicity to predaceous mites include Imidan (phosmet), Assail, Altacor, Belt, Rimon, and Entrust. Among the insecticides to avoid because they destroy populations of predaceous mites are pyrethroids, Sevin, Lannate, Vydate, and Carzol. See page 19 of the [2012 Midwest Tree Fruit Spray Guide](#) for a more complete listing of the toxicity of insecticides to predaceous mites.
- The threshold used most commonly for mite control in mid-season is 5 mobile mites per leaf. If predaceous mites are present, this threshold might be modified upward. For more information on sampling and thresholds, see *European Red Mite Management* (<http://extension.entm.purdue.edu/publications/E-258.pdf>) by Rick Foster of Purdue University.
- Midseason miticides that kill European red mite and are relatively low in toxicity to predators include Nexter, Acramite, Envirdor, FujiMite/Portal, Kanemite, Onager, and Zeal. Although these miticides are very effective, they also are costly, so scouting and basing control decisions on infestations in individual blocks of trees is always the best approach.

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Notes on Oriental Fruit Moth and Codling Moth

Oriental fruit moth third generation flight should be underway in southern Illinois. Second generation flight is ending in central Illinois, and third generation flight is likely to begin by early July. Second-generation flight has continued to be very light at the University of Illinois orchard at Urbana, but fruit and shoot damage was evident in southwestern Illinois orchards earlier this week.



OFM damage to a shoot (left) and fruits (right). (Right-hand photo from University of Idaho.)

Oriental Fruit Moth

Location	Biofix Date	Degree-days (base 45 F) from biofix through June 20	Degree-days (base 45 F) estimated through June 27	Degree-days (base 45 F) estimated through July 4
Carbondale	March 18	2035	2245	2461
Belleville	March 18	2001	2214	2435
Urbana	March 24	1694	1902	2112

Codling moth: Degree-day accumulations based on a 50-degree F developmental threshold are summarized below, along with estimates of the status of this insect at locations ranging from southern to northern Illinois.

Codling Moth

Location	Biofix Date	Degree-days (base 50 F) from biofix through June 20	Degree-days (base 50 F) estimated through June 27	Degree-days (base 50 F) estimated through July 4
Carbondale	March 30	1408	1583	1764
Belleville	March 25	1445	1624	1810
Urbana	April 25	1064	1237	1412
Woodstock	May 10	734	894	1051

Some reference points for degree-days and codling moth development ...

- At 800 DD, first generation flight is 100 percent complete, and egg hatch is 95 percent complete.
- At 1,000 DD, second-generation flight is 5 percent complete.
- At 1,100 DD, second generation flight is 13 percent complete, and egg hatch is just beginning.
- At 1,400 DD, second generation flight is 60 percent complete, and egg hatch is 21 percent complete.
- At 1,700 DD, second generation flight is ~90 percent complete, and egg hatch is ~70 percent complete.

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Freeze Damage Versus Catfacing



The peaches on the left exhibit freeze injury; the peach on the right exhibits catfacing caused by plant bugs or stink bugs.

Just for the record ... some odd-looking freeze damage to peaches may be confused with catfacing caused by plant bugs and stink bugs. Let's hope we don't see the freeze damage again next year, but those who have peaches with this damage this year, be sure not to react by stepping up a spray program against catfacing insects next year ... they are not the cause of the distortions.

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Vegetable Production and Pest Management

Corn Earworm

Mike Roegge mentioned that corn earworm moth counts in his pheromone trap in the Quincy area have been somewhat variable over the past few weeks. Although every commercial sweet corn and tomato grower in Illinois should be operating his or her own pheromone trap for this insect, results of trapping conducted at a few locations around the state are posted on the North Central IPM PIPE (Pest Information Platform for Extension and Education) website –

<http://apps.csi.iastate.edu/pipe/?c=entry&a=view&id=68> .

A few overall reminders and specific recommendations ...

The corn earworm is generally the most serious pest of sweet corn in Illinois (though European corn borer, and fall armyworm, and other direct pests also attack the crop), and it also infests tomatoes, peppers, and green beans (as well as several other crops). It may overwinter as a pupa in light soils in southern and southwestern Illinois (and along the Illinois River in west-central Illinois), and this year its overwintering success appears to have been greater than usual due to the mild winter. It also migrates into the state from the south each season. Moths are almost always active in the Collinsville area by late May and early June, but in much of the state the period of first activity (and the first need to control them) can vary from June through August. Although control may be necessary in one portion of the state at a particular time, it may be unnecessary in many other locations. Consequently, it really is essential to operate an earworm trap and determine spray needs based on moth captures. Adults lay eggs directly on the silks of corn, and newly hatched larvae move directly down the silk channel to feed on the tip of the developing ear. For insecticides to control this insect, they must be on the silks that the larva contacts as it moves into the ear, and they must be applied repeatedly to cover new silk growth.



Upper left: corn earworm adult Kansas Dept. of Agric.); upper right: eggs on silks (Cornell Univ.); lower left: larva on ear tip (Univ. of Illinois); lower right: "Hartstack" pheromone trap used to monitor flights (Univ. of Illinois).

Again, all sweet corn and tomato growers should use Hartstack pheromone traps to determine the timing of moth flights and the need for insecticide applications. Bait the trap with Hercon "zealures," and replace the lure with a new one every 2 weeks. See the text below for suppliers. Earworm control is necessary when moth flight is ongoing and fresh silks are present. If traps are catching even a few moths when silking begins, sprays should be applied within 2 days after first silk -- insecticide residues must be on the silks to kill larvae immediately after they hatch from eggs and before they enter the silk channel.

Insecticides: Pyrethroids (particularly Baythroid, Brigade, Hero, Mustang Max, Warrior, and the generics that contain the same active ingredients) have been effective for earworm control, but populations of corn earworm that migrate into the region every year show varying levels of resistance to pyrethroids. The older pyrethroids Ambush, Pounce, and Asana (and their generics) are not as effective as the newer products just mentioned. Highly effective alternatives to pyrethroids include Belt, Coragen, and Radiant, but these insecticides do not control corn rootworm beetles that may clip silks and prevent pollination. Limited data indicate that combining a pyrethroid with one of these alternatives (using a low to middle rate within the label-instructed range for each) may be most effective. A pre-mix that contains such a mixture is Voliam Xpress – it contains the active ingredients found in Warrior and Coragen. Tank-mixing a pyrethroid with Sevin, Lannate, or Larvin provides some benefit but is not likely to be as effective as tank-mixes of one of the newer pyrethroids with Belt, Coragen, or Radiant or the premix sold as Voliam Xpress. For organic growers, Entrust is the most effective OMRI-approved insecticide for corn earworm.

Spray intervals: When moth flight is heavy (greater than 50-100 moths per trap per night) and temperatures are high (upper 60s at night, 90 and above during the day), the spray interval for high levels of control needed in fresh-market sweet corn for the pyrethroids listed above and for Belt, Coragen, or Radiant (or tank mixes or premixes) should be no longer than 3 days and as short as 2 days (with a maximum interval of 2 days for Entrust). When moth counts are lower

(3-25 per night) and the daily average temperatures (max + min divided by 2) are in the low 70s or lower, the interval for the pyrethroids listed above, Belt, Coragen, or Radiant (or tank mixes or premixes) might be increased to 4 days, and for Entrust to 3 days. The demands and expectations of your customers may influence these guidelines ... if you need 95 percent worm-free corn, keep the spray intervals on the short end of the ranges listed above. It is NOT useful to apply insecticides for earworm control until silking begins because significant egg-laying in corn begins only after silks are present.

Traps and lures: The Hartstack trap can be purchased from Bob Poppe, Route 1, Box 33, Lexington, IL, 61753 (309-275-5477). Lures can be purchased from Great Lakes IPM (800-235-0285; <http://www.greatlakesipm.com/>).

The wire Hartstack trap is not cheap ... think in the \$250 range for the trap plus shipping, and think higher numbers if the traps must be shipped a long way. But before you let the price tag make you balk, consider ...

- These traps will last for many years (I have a couple that are over 20 years old) ... as long as you don't run over them with tractors or other vehicles.
- Along with a few dollars for lures every year and daily monitoring of moth counts, they provide you with guidance that can keep you from spending thousands of dollars unnecessarily or losing thousands of dollars' worth of sweet corn sales. If you spray 10 acres of sweet corn even twice a week for 3 weeks before earworms are present and require control, that's 6 applications at (conservatively) \$12.00 per acre for each application ... multiplied by 10 acres, that's \$720 (plus the loss of time not spent doing something more necessary). Multiply that by a 20-year life span for the trap, and the total exceeds \$14,000. I think that pays for the trap and the lures. Viewed in a different way, if high trap counts lead you to spray more often in order to get the control you really need, you market more corn. For a fresh-market producer who sells sweet corn at \$4.00 per dozen, a yield of 1,000 dozen per acre is worth \$4,000. Preventing a 5 percent loss by spraying extra when needed saves \$200 per acre in sales. Multiply that by 10 acres and 20 years, and the total reaches \$40,000 ... that, plus keeping your customers from complaining about wormy corn, certainly pays for the cost of a trap and a package of lures every year. Buy a Hartstack trap and use it.

(Rick Weinzierl; 217-244-2126; weinzier@illinois.edu)

MarketMaker

The screenshot shows the MarketMaker website interface. At the top, there's a navigation bar with links like 'My Home', 'My Business', 'My Buy & Sell Ads', 'My Connections', 'My Alerts', 'My Account', and 'Logout'. Below this is the 'My Connections' section, which includes a description of the feature and a list of connected businesses. The list has columns for Name, Type, Date Connected, and Remove. Below the list is a 'Add New Connection' section with a search box and a 'Submit' button. At the bottom, there are logos for AgMRC, USDA, Farm Credit, and University of Illinois Extension, along with a footer containing site navigation and copyright information.

Name	Type	Date Connected	Remove
Rick's Garden, Spout Meats	Mine	2010-04-11 13:53:17.527	Remove
Apple Tree Acres, Albasas	Mine	2010-04-11 13:53:17.527	Remove
ThruShedwood Farms, Quality Meats, Inc.	Mine	2010-04-11 13:53:17.527	Remove
Ashburn, (Chicago) Farmers' Market	Mine	2010-04-11 13:53:17.527	Remove
Bartlett Farmers' Market	Mine	2010-04-11 13:53:17.527	Remove
Albionville Farmers' Market	Mine	2011-05-23 09:53:26.153	Remove
Huntlandsburg Farmers' Market	Mine	2010-04-11 13:53:17.527	Remove
Delle Escorte Farms	Mine	2012-01-18 10:42:50.740	Remove
Dobsoner Family Farm	Mine	2012-06-19 12:05:50.523	Remove

MarketMaker now has a new “My Connections” feature. “My Connections” lets you connect to other businesses with which you work. Use “My Connections” to connect with the farmers markets where you sell your produce, the retailers

that carry your produce, or other local food businesses that are important to your operation. These businesses will appear on your profile as a “Business Connection” (ex: connecting to a farmers market where you sell will enable a user to go directly to the market’s profile page to find dates/times of operation.)

To make a connection, log into your account and select the “My Connections” tab. Type in the name of a MarketMaker business you would like to connect with, and then click to add that business. An email is sent to the business to inform them of your connection.

Add as many businesses as you like. Businesses you connect with on MarketMaker appear on your business’s detail page.

Lori Dalfonso (309-792-2500; dalfonso@illinois.edu)

Less seriously ... my mother taught me

My mother taught me TO APPRECIATE A JOB WELL DONE ... "If you're going to kill each other, do it outside. I just finished cleaning."

My mother taught me RELIGION ... "You better pray that will come out of the carpet."

My mother taught me LOGIC ... "Because I said so, that's why."

My mother taught me MORE LOGIC ... "If you fall out of that swing and break your neck, you're not going to the store with me."

My mother taught me IRONY ... "Keep crying, and I'll give you something to cry about."

My mother taught me about the science of OSMOSIS ... "Shut your mouth and eat your supper."

My mother taught me about CONTORTIONISM ... "Will you look at that dirt on the back of your neck!"

My mother taught me STAMINA ... "You'll sit there until all that spinach is gone."

My mother taught me ANTICIPATION ... "Just wait until we get home."

My mother taught me MEDICAL SCIENCE ... "If you don't stop crossing your eyes, they are going to get stuck that way."

My mother taught me GENETICS ... "You're just like your father."

My mother taught me about JUSTICE ... "One day you'll have kids, and I hope they turn out just like you!"

My mother taught me about CHOICE ... "Do you want me to stop this car?"

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